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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/668,194

09/24/2003

Hiroshi Taira

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12/17/2004

OLIFF & BERRIDGE, PLC

P.O. BOX 19928

ALEXANDRIA, VA 22320

EXAMINER

STEPHENS, JUANITA DIONNE

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/668,194

Applicant(s)

TAIRA, HIROSHI

Examiner

Juanita D. Stephens

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Application filed 9/24/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-14 is/are rejected.
- 7) ☒ Claim(s) 7 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/19/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, and 8-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Usui et al. (US 5,748,214).

Usui et al. discloses an ink-jet head comprising: 1) a passage unit (formed by plates 54, 56, 59, 63 and 65) including a plurality of cavity recesses/holes (pressure chambers 51) arranged in a matrix, each communicating with both a nozzle (66) for ejecting ink (col 12, lns 22-28 as shown in Fig. 12A) and a common ink chamber (reservoir chamber 55) and each constituting a cavity of a pressure chamber (51), and a plurality of peripheral recesses/holes (dummy pressure chambers 71) arranged along a whole periphery of the plurality of cavity recesses/holes and each communicating with neither the nozzle nor the common ink chamber (col 11, lns 16-18; col 12, lns 28-31), 2)

an actuator unit (col 11, Ins 3-9) that closes openings of the cavity recesses/holes to define a plurality of pressure chambers(51) with the passage unit, and change the volume of each pressure chamber (col 11, Ins 10-14), 3) wherein the plurality of peripheral recesses/holes (dummy pressure chambers 71) are arranged at a same interval as that between the cavity recesses/holes (pressure chambers 51)(as shown in Fig. 13), 4) wherein a contour of a region of an opening of the peripheral recess/hole (dummy pressure chambers 71) facing to the cavity recess/hole (pressure chambers 51) is parallel to a contour of a region of the opening of the cavity recess/hole (pressure chambers 51) facing to the peripheral recess/hole (dummy pressure chambers 71) (as shown in Fig. 13), 5) wherein the opening of the peripheral recess/hole (dummy pressure chambers 71) has a same shape and a same size as those of the opening of the cavity recess/hole (pressure chambers 51)(as shown in Fig. 13), 6) wherein a distance between the peripheral recess/hole (dummy pressure chambers 71) and the cavity recess/hole (pressure chambers 51) is the same as a distance between the neighboring cavity recesses/holes (pressure chambers 51) (as shown in Fig. 13), 7) wherein the actuator unit is fixed to passage unit such that the opening of each cavity recess/hole (pressure chambers 51) and the opening of each peripheral recess/hole (dummy pressure chambers 71) is closed (as shown in Fig. 13), 8) a first plate (pressure chamber forming plate 54) including a plurality of cavity holes arranged in a matrix, each constituting a cavity of a pressure chamber (51) (col 11, Ins 10-14), and a plurality of peripheral holes (dummy pressure chambers 71) arranged along a whole periphery of the plurality of cavity holes (pressure chambers 51) (col 11, Ins 16-18), 9) a

second plate (resilient plate 50) put on one face of the first plate such that an opening on one side of each cavity hole is closed (col 11, Ins 3-8), 10) a third plate (seal plate 56) formed with first and second connection holes corresponding to each of the plurality of cavity holes, the third plate being put on the other face of the first plate such that the first and second connection holes are connected with the corresponding cavity hole to define the plurality of pressure chambers with the first plate and the second plate (col 11, Ins 19-21), 11) wherein the second plate (resilient plate 50) is put on one face of the first plate (pressure chamber forming plate 54) such that the opening on one side of each cavity hole (pressure chamber 51) and the opening on one side of each peripheral hole (dummy pressure chamber 71) are closed (as shown in Figs. 12A and 12B), and 12) wherein the opening on one side of each peripheral hole (dummy pressure chamber 71) is closed with the second plate (resilient plate 50), and the opening on the other side of each peripheral hole is closed with the third plate (seal plate 56) (as shown in Fig. 12B).

Allowable Subject Matter

5. Claims 7 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

The limitation of wherein the opening of the cavity recess and the opening of the peripheral recess have a shape of parallelogram with two acute portions, and one acute

portion of the opening of the peripheral recess is located between the opening of two cavity recesses adjacent to the relevant peripheral recess, recited in claim 7. This invention solves the problem of reducing variance in ink ejecting characteristics depending on positions in a group of pressure chambers formed with a plurality of pressure chambers arranged in a matrix to neighbor each other.

The limitation of wherein openings on both sides of the cavity hole and opening on both sides of the peripheral hole have a shape of parallelogram with two acute portions, and one acute portion of each opening of the peripheral hole is located between the openings of two cavity holes adjacent to the relevant peripheral hole, recited in claim 15. This invention solves the problem of reducing variance in ink ejecting characteristics depending on positions in a group of pressure chambers formed with a plurality of pressure chambers arranged in a matrix to neighbor each other.

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juanita D. Stephens whose telephone number is (571) 272-2153. The examiner can normally be reached on Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Juanita D. Stephens". The signature is fluid and cursive, with the first name being the most prominent.

Juanita D. Stephens
Primary Examiner
Art Unit 2853

December 6, 2004